Remarks/Arguments

Claim Rejections

Examiner:

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanford (the US Patent No. 6,268,831).

The Sanford reference teaches in figure 6 a monopole antenna for a wireless device, the antenna comprising a conductor plate 140 having a first plate portion 142 and a second plate portion 141, the first plate portion 142 having a width W2 between a first edge and a second edge thereof and a second height L2, the second plate portion 141 being connected to the first edge of the first plate portion for feeding signals of the first resonance band and the second resonance band. The second plate portion 141 is L-shaped. The first plate portion 142 is substantially rectangular (figure 6).

Response:

The Applicant believes that the present invention as claimed differs from Sanford for at least the following reasons and respectfully requests reconsideration of all claims remaining in the application.

Figs.4A-D of Sanford illustrate "an inverted F antenna" (Col.5, line 14). "A signal feed 45 extends from a face 41a of the first planar conductive element 41 as illustrated and electrically connects the antenna 40 to an RF transceiver 24 within a wireless communications device." (Col.5, lines 28-32). Please refer to Figs.4B and 4D showing the precise location of the connection of the signal feed 45 as being somewhat central relative to the first planar conductive element 41.

Turning now to Fig.6 cited by the Examiner, the text (Col.6, line 47 through Col.7, line 16) and drawing disclose another embodiment of "an inverted F antenna" similar in functionality to those of Figs.4. A comparison of the Figs.4-6 and accompanying text indicate only a difference that the antenna shown in Fig.6 has only a two conductive plates (141, 142) rather than the 3 conductive plates (41, 42, 43) shown in the previous embodiments. Everything else remains the same. Although Sanford is completely silent as to the location of the feed line in Fig.6, there is no reason to reasonably assume that the location of the feed line for the antenna of Fig.6 would be any different than the location of the feed lines illustrated in Figs.4B and 4D. On the contrary, all evidence and working knowledge of "an inverted F antenna" points to keeping the feed line in approximately the same somewhat central location in all inverted F antennas disclosed in Figs.4-6. In fact, the "exemplary graph of the VSWR performance of the antenna of FIGS. 4A-4D and FIGS. 5-6" (Col.7, 17-19) illustrated in Fig.7 of Sanford would bare additional evidence that the location of the feed line is similar in all Figs.4-6.

As noted in the response to the Office action dated 11/06/2003, "the positions of the feeding terminals and grounding elements are important considerations in the design of an antenna". This is collaborated by U.S. Pat. Nos. 5,684,492 and 5,434,579 incorporated by reference into the cited Sanford patent as "Examples of inverted-F antennas" (Col.1, lines 53-56). For example, Col.1, line 64 through Col.2, line 3 of the incorporated U.S. Patent 5,434,579 states: "Further, since the impedance matching of the input impedance of the inverted F antenna 17 to the characteristic impedance of the coaxial line 14 is controlled by the connection position of the internal conductor 15 with the plate conductor 11, in order to perform the impedance matching, **the connection position of the internal conductor 15 with the plate conductor 11 is unequivocally determined.**" It is noted that the "internal conductor 15" refers to an internal conductor 15 comprised by a coaxial line 14 as a feeder line (Col.1, lines 26-28).

Please turn now to Fig.4 and the 2nd paragraph of the "Detailed Description of the Preferred Embodiment" section of the present application. "The antenna 50 comprises a conductor 52, a feeding terminal 54 connected to the RF module of the cellular phone 40, and a conductor surface 56. The conductor 52 is an L-shaped sheet comprising a first end 58 and a second end 60. The first end 58 is connected to the feeding terminal 54, and the second end 60 is connected to the conductor plate 56. The feeding terminal 54 of the antenna 50 is connected to the RF module 42 of the cellular phone 40, and feeds and takes wireless information to and from the RF module 42."

Obviously, the present invention antenna having the feeding terminal 54 at the end 58 of the L-shaped conductor 52 is structurally different from the inverted F antenna of Sanford having its feed line 45 connected to a somewhat central "unequivocally determined" location of the conductor plate 41 (or 141). This structural difference was present in claim 9 of the current application before the current Office action. MPEP 2131 says to anticipate a claim, the reference must teach every element of the claim. The Applicant respectful submits that the reference fails to match the claimed limitation of the L-shaped second conductor plate comprising a first end connected to a feeding terminal.

Furthermore, the cited prior art states that "the connection position of the internal conductor 15 with the plate conductor 11 is unequivocally determined" in order to perform the impedance matching. Therefore, any attempt to modify the reference antenna to meet claim 9 limitation would be considered non-obvious because to do so would alter a principle of operation of the reference device, that of impedance matching (MPEP 2143.01).

It is also noted that claim 10 additionally contains another structural limitation, the feeding terminal is directly connected to an RF module of the

wireless device, that is unmet by the cited prior art. As discussed above, Sanford utilizes "A signal feed 45" extending from the conductor plate to the RF circuitry. U.S. Pat. Nos. 5,684,492 and 5,434,579 disclose the signal feed ("internal conductor 15") as comprised by a coaxial line 14 as a feeder line. Because of the direct connection between the feeding terminal and the RF module, the present invention saves the cost of the coaxial cable (2nd paragraph of the "Detailed Description of the Preferred Embodiment" section of the present application).

In an effort to fulfill the requirements of a response to a final Office action, claims of the current application have been amended as follows to place the current application in condition for allowance. Claim 1 has been amended to include the limitations of claim 9. No new material has been introduced. Claim 10 previously depended upon claim 9 and has been slightly amended to now depend on claim 1. Claims 3-9 and 11 have been cancelled without any disclaimer of any kind regarding their merits as filed.

For at least the reasons discussed above, the Applicant believes that the current application as claimed discloses a new and useful device having a structure and functionality not taught nor made obvious by the prior art and respectfully requests reconsideration and allowance of claims 1-2 and 10.

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